Welcome to 300 level math ! Math 310

Welcome! This class is (likely) the first 300 level mathematics course you have taken. Congratulations! You have made it through the calculus sequence and are on your way to learning higher math. Before we begin, let's make sure we understand the differences between higher level math classes and calculus, the expectations in this class and what you need to do in order to succeed.

What is different? Let's start by looking at how this class differs from calculus. In calculus you are required to *compute* various quantities correctly. Sometimes you have to be ingenious as to what methods you use (this is the case with the various integration techniques). Some times you have to apply mathematical reasoning (like deciding the increasing/decreasing behavior of a function using the first derivative test).

In higher level math you *always* have to *apply mathematical reasoning*. This means we'll be proving assertions on a daily basis. Soon after the class begins you will learn what a proof is and you will be required throughout the semester to write clear, logical proofs and solutions to problems. Of paramount importance will be your ability to *clearly* communicate mathematics and *correctly* use mathematical terms and facts. This includes writing in full sentences with appropriate use of grammar rules.

Of course we'll still be computing various things and you in doing this you should always try to check if your answer is reasonable. Your instructor will provide examples, you will discuss them in class, and you will practice with numerous homework problems.

How to approach studying?

1. *Take notes* in class. *Read them* at home before the next class period.
2. *Learn the language:* all definitions must be learned. Make sure you learn definitions correctly and can express them in full sentences. These will be tested on quizzes and exams.
3. *Learn the facts:* theorems, properties, any results proved in class must be learned. You don't have to worry that memorizing them will be hard task: you will have memorized them by the time you complete your homework assignments because you will have used these facts often.
4. *Homework* may be discusses in groups but make sure you write it up individually and that you understand your solutions. If you desire extra practice do more problems from the book.
5. *If at first you don't succeed write, write, write again !* It will be a bit hard, especially since this is all new for you to adjust to the rigorous writing demanded by a higher math class. I recommend that you go through several drafts of your homework before submitting it. Compare to the class notes or the textbook for a good model to follow and a sense of the appropriate language.
6. *Do your studying pencil-in-hand*: re-write the important parts of the lecture (definitions, theorems) when studying. It will help you remember them, especially if you're a visual learner and will also give you a good course summary to use when preparing for the final.

Where to get help

1. *The instructor:* Ask questions about anything unclear and *make good use of office hours.*
2. *Your peers:* Discussing with your peers is the best way to go through higher level math. Since many of you are preparing to be teachers take this as a wonderful opportunity to practice clarity.
3. *The class notes and textbook:* If you are stuck on a particular problem there is always a similar one either discussed in class or in the textbook.

What do I need to do to succeed? Typically it takes 4 hours of work outside of class for every class period to get an A, 3 hours to get a B, 2 hours to get a C. Be committed to put in the time.

What will my grade be in this class? Check the Grade predictor under My Grades in Blackboard. This reflects your performance in the class so far.